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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/681,962	10/09/2003	George Phillips O'Brien	MIC-36 (P50-0117)	7782

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EXAMINER
MULLEN, THOMAS J

ART UNIT	PAPER NUMBER
2632	

DATE MAILED: 03/17/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	**Application No.** 10/681,962	**Applicant(s)** O'BRIEN ET AL.	
	Examiner Thomas J. Mullen, Jr.	**Art Unit** 2632	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-34* is/are pending in the application.
 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5)☒ Claim(s) *1,4,5,8-14,18,20-23 and 27-29* is/are allowed.
6)☒ Claim(s) *25,26 and 31-34* is/are rejected.
7)☒ Claim(s) *2,3,6,7,15-17,19,24 and 30* is/are objected to.
8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.
10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a)☐ All b)☐ Some * c)☐ None of:
  1.☐ Certified copies of the priority documents have been received.
  2.☐ Certified copies of the priority documents have been received in Application No. _____.
  3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
 * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
 Paper No(s)/Mail Date *10/9/03*.
4) ☐ Interview Summary (PTO-413)
 Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

1. The disclosure is objected to because of the following informalities:

page 9, line 13, it appears that "93" should be --92--;

page 14, line 21, it appears that "60" should be --68--;

page 15, lines 14-15, it appears that "longer at these locations as previously recorded" would be clearer as --longer at this location than that previously recorded--;

page 15, lines 25 and 27, it appears that "criteria" (one occurrence on each line; plural) should be --criterion-- (singular);

page 16, line 3, it appears that "verses" should be --versus--;

page 16, line 24, "seperation" should be --separation--; and

page 18, line 32, it appears that --valve-- should be --value--.

Appropriate correction is required.

2. Claims 2-3, 7, 15-17, 24 and 30-34 are objected to under 37 CFR 1.75(a) for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 2, line 3, it appears that "to" should be deleted (note "either...", line 2).

Claim 7, line 4, it appears that "location" should be --locations--.

Claim 15, lines 2-3, it appears that "third output signal" should be --third sensor output signal-- (note the various other "sensor output signals" recited--i.e., first, second and fourth--in claims 12 and 15).

Claim 15, line 5, it appears that "in" should be --on--.

Claim 15, line 7, it appears that "signal" (first occurrence) should be --signals--.

Claim 24, lines 7-8, it appears that "array output signals" should be --array location output signals-- (note the previous occurrences of this phrase, in the singular form, on lines 3-5).

Claim 30, line 4, it appears that "exists" should be --existing-- (note "occurs", last line).

Claim 31, line 6, it appears that "the tire" should be either --the tires-- or --a tire-- (note that the sensors are associated with multiple tires of the vehicle, lines 2-3).

3. The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the

following is required: there appears to be no mention in the specification of the "fifty millisecond time period" recited in claims 6 and 19 (which time period apparently relates to the period or interval between the temperature spikes 70 shown in Figs. 4, 7 and 8). If reference to this claim recitation exists in the specification as filed, applicant is requested to identify a page and line number of such reference; otherwise, this subject matter should be inserted in an appropriate place in the specification, based on its support in the original disclosure as filed (i.e., in the claims as filed).

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 31-32 and 34 rejected under 35 U.S.C. 102(a) as being anticipated by Watkins (US 2003/0117275).

Note in Watkins, tire 18; wheel well 16; multiple housings 12 physically mounted at the surface of the wheel well (Figs. 2 and 5), each housing enclosing a thermal sensor/"receiver" 42 (paragraph 0014, lines 8-10); processor 46; and display 50. Watkins teaches providing such an arrangement for "each tire" (paragraph 0027, lines 15-18), and simultaneously monitoring the thermal characteristics of "multiple areas" of a given tire, such as "tread" and "side wall" portions (paragraph 0038, lines 12-19). In an alternate embodiment (Fig. 4), Watkins teaches using a thermal "array" (88,88a) mounted at various "array locations" in the tire 97 itself. Thus, as to claim 31 Watkins discloses at least two sensors (12,42) carried by a vehicle 11 and positioned so as to sense the temperature at locations on at least two tires (paragraph 0027, as discussed above), signal processing device 46 in communication with the sensors and producing a processing device output signal ("display signal", paragraph 0020, lines 1-2) representing a potential damage condition of at least one tire ("potential tire failure", Title), and indicator device 50 for indicating to a vehicle user (at the dashboard--paragraph 0025, line 5) that at least one tire is experiencing the potential damage condition.

Regarding claim 32, "each tire" corresponds to "four different tires" on an ordinary motor vehicle (e.g. as shown in Fig. 1).

Regarding claim 34, Watkins teaches that the display 50 uses a "unique symbol" for each tire being monitored; i.e., each of the back tires (as well as each of the front tires) of an ordinary motor vehicle has its own symbol, implying that any detected condition(s) which pertain(s) to any one or more of the tires is communicated to the display 50. It follows that the processing device output signal, or "display signal" discussed above, is produced based on outputs received from the sensor(s)/receiver(s) 42 of each tire (including both back tires), and thus the display signal is produced based (in part) on the temperatures sensed on the "two different back tires" of the vehicle.

6. Claims 31-34 are rejected under 35 U.S.C. 102(e) as being anticipated by Breed et al (US 6748797).

Note in Breed et al, tire 12; tire well 14; multiple tire temperature sensors (10,10A in Fig. 1A) physically mounted in the tire well (see Fig. 1 and col. 11, lines 18-21); processor 17; and warning/alarm device 98 (Fig. 8). Breed et al teaches providing such an arrangement for "(e)ach tire well of the vehicle" (col. 11, lines 21-22). Breed et al further teaches determining comparing the temperatures detected by "mating tires", which for an automobile would be the opposing tires "at the front or back of the vehicle" (col. 11, lines 38-42 and 44-45); if the compared temperatures reflect a persisting "temperature differential" between the mating tires, then it is determined that "the hotter tire is under-inflated, delaminating or otherwise defective" (col. 11, lines 45-50; see also Fig. 9, steps 106-110). Thus, as to claim 31 Breed et al discloses at least two sensors (10,10A) carried by a vehicle and positioned so as to sense the temperature at locations on at least two tires ("mating tires", as discussed above), signal processing device 17 in communication with the sensors and producing a processing device output signal (for "activation of response means", col. 12, lines 38-43) representing a potential damage condition of at least one tire ("delaminating", etc, as discussed above), and indicator device 98 for indicating to a vehicle user ("alert(ing) the driver"--col. 12, line 41) that at least one tire is experiencing the potential damage condition.

Regarding claim 32, "each tire well" corresponds to "four different tires" on an ordinary motor vehicle.

Regarding claims 33-34, as discussed above Breed et al teaches comparing the temperatures measured by associated "mated pairs" of tires of the vehicle (see further in Breed et al, col. 6, lines 7-63, especially lines 11-15 and 46-48); such "mated pairs" of tires, on an ordinary motor vehicle, would be the two front tires (as in claim 33) and the two back tires (as in claim 34).

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8. Claims 25-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Albuquerque (US 2004/0196147; eff. date 4/7/03).

Note in Albuquerque (paragraph 0014), a tire having "inner" (6), "middle" (7) and "outer" (8) tread zones (Fig. 4); temperature sensors (4), one for each tread zone (Figs. 1-3); and temperature sensors (5) mounted adjacent the sidewalls of the tire (Figs. 1-3). The tread zone sensors (4) may be embedded in the tread (2) under the radial cord (3) (Fig. 1), embedded in the tread (2) above the radial cord (3) (Fig. 2), or adhesively attached to the inside surface of the tire (Fig. 3). Albuquerque discusses various tire conditions which may cause the temperature in one or more tread zones (e.g., 6 and 8), as sensed by temperature sensors (4), to be higher than in the other tread zone(s) (e.g., 7), see paragraphs 0017-0020. In paragraphs 0003-0004, Albuquerque teaches that the various sensors transmit signals to a "receiver that will compile, analyze and display data to (a) display device" (using "processing circuitry (or) microprocessors"), and that the sensors are applied to "all tires on a vehicle". Thus, as to claim 25 Albuquerque teaches producing first and second sensor output signals representing the temperature at first and second tire locations, respectively (e.g. locations 6 and 7); receiving the first and second sensor output signals (at the "receiver"); producing a processing device output signal (using the "processing circuitry (or) microprocessors"), representing a "potential damage condition" of the tire, in response to a temperature difference between the first and second sensor output signals (as generally discussed in paragraphs 0017-0020); and indicating to a user (using the "display device") that the tire is experiencing the "potential damage condition". Albuquerque fails to specifically disclose a "particular temperature difference" (between sensor outputs) that will trigger the processing device output signal for indicating the "potential damage condition"; however, one of ordinary skill in the art would have determined the relevant "particular" temperature difference(s), corresponding to one or more "potential damage conditions" that one desires to be monitored, by routine experimentation. Therefore, it would have been obvious for one skilled in the art using the Albuquerque system and method to have the "processing device output signal" produced in response to a "particular temperature difference" between sensor outputs.

Regarding claim 26, since Albuquerque teaches using "a minimum of five temperature sensors" (Abstract) with a tire--i.e., the tread zone sensors 4, and the sidewall sensors 5--Albuquerque thus further discloses at least "third" and "fourth" sensor output signals, which may be processed in an analogous manner to that discussed above; i.e., the method of Albuquerque is capable of processing (using the "processing circuitry (or) microprocessors") and responding to a temperature difference between a third and a fourth sensor output signal, e.g. a temperature difference between one of the tread zone sensors 4 and one of the sidewall sensors 5, or a temperature difference between the two sidewall sensors 5.

9. Claims 1-24 and 27-30 are allowed, or would be allowable if rewritten or amended to overcome the objection(s) under 37 CFR 1.75(a) and 37 CFR 1.75(d)(1), set forth in this Office action.

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

The art cited by applicant has been considered. Barnett (US 6448891), Schick (US 2003/0201044), Schurmann (US 5353020) and Robillard et al (US 6259361) are cited to further show the state of the art.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thomas J. Mullen, Jr. whose telephone number is 571-272-2965. The examiner can normally be reached on Monday-Thursday from 6:30 AM to 4 PM. The examiner can also be reached on alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Daniel Wu, can be reached on (571) 272-2964. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 571-272-2600.

TJM

Thomas J Mullen Jr

Thomas J. Mullen, Jr.
Primary Examiner
Art Unit 2632